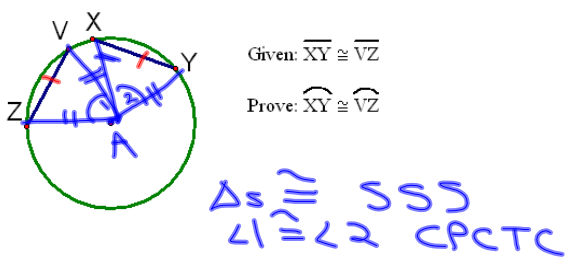
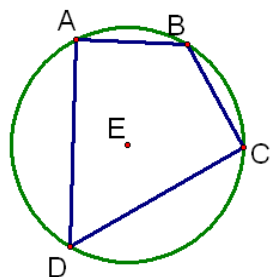


10-3 Arcs and Chords

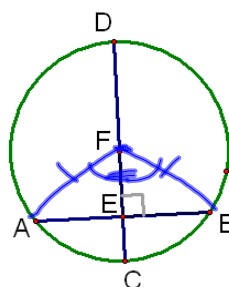
Theorem 10.2--In a circle or in congruent circles, 2 minor arcs are congruent iff their corresponding chords are congruent

(\cong chords have \cong arcs)





ABCD is **inscribed** in $\odot E$
 $\odot E$ is **circumscribed** about the polygon

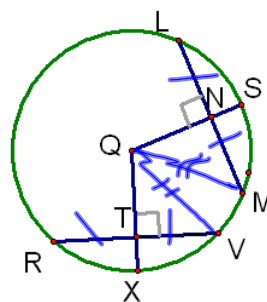


Given: $\overline{AB} \perp \overline{CD}$

Prove: $\overline{AE} \cong \overline{EB}$

CPCTC
 $\triangle FEA \cong \triangle FEB$
HL

Theorem 10-3 In a circle, if the diameter is perpendicular to a chord, it bisects the chord and its arc.



Given: $\overline{LM} \perp \overline{QS}$

$\overline{LM} \cong \overline{RV}$

$\overline{QT} \perp \overline{RV}$

Prove: $\overline{QN} \cong \overline{QT}$

CPCTC
 $\triangle QNM \cong \triangle QTV$
HL

Theorem 10.4--In a circle, or in congruent circles, 2 chords are congruent iff they are equidistant from the center

Given: $\overline{AC} \cong \overline{HF}$

What can you conclude?

$\widehat{HF} \cong \widehat{AC}$

Suppose $HF = 16$
 $GE = 6$

Circumference = 20π

$C = 2\pi r$

$r^2 = 6^2 + 8^2$
 $r^2 = 36 + 64$
 $r^2 = 100$
 $r = 10$

Circle O has a radius of 10, $AB = 10$, and $m\widehat{AB} = 60$. Find each measure.

5. $m\widehat{AY}$ 6. AX 7. $OX = 5\sqrt{3}$

30 5

Exercises 5-7

In $\odot P$, $PD = 10$, $PQ = 10$, and $QE = 20$. Find each measure.

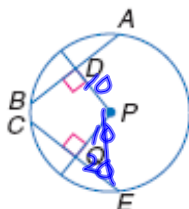
8. AB

40

9. PE

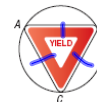
$= 10\sqrt{5}$

$$\begin{aligned} 20^2 + 10^2 &= PE^2 \\ 500 &= PE^2 \\ 10\sqrt{5} &= PE \end{aligned}$$



Exercises 8-9

Application 10. **TRAFFIC SIGNS** A yield sign is an equilateral triangle. Find the measure of each arc of the circle circumscribed about the yield sign.



$$360 \div 3 = 120^\circ$$

HW

p540

11-34